AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listing of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A method for bulk separation of single-walled tubular fullerenes based on helicity, comprising the steps of:

providing a plurality of single-walled tubular fullerenes of differing helicity;

providing a substrate having a lattice structure and an exposed upper surface;

directing a flow of said plurality of single-walled tubular fullerenes ~~on~~ across said upper surface of said substrate, said flow being parallel with said upper surface of said substrate and at an angle with respect to an axis of said lattice structure of said substrate, said angle being selected to attract and hold single-walled tubular fullerenes of a predetermined helicity to said substrate; and,

removing said single-walled tubular fullerenes held to said substrate ~~therefrom~~.

2. (Previously presented) The method as recited in Claim 1, wherein the step of directing a flow is preceded by the step of dissolving at least a portion of said plurality of single-walled tubular fullerenes in a fluid.

3. (Previously presented) The method as recited in Claim 1, wherein the step of directing a flow is preceded by the step of suspending at least a portion of said plurality of single-walled tubular fullerenes in a fluid.

4. (Previously presented) The method as recited in Claim 1, wherein the step of directing a flow includes the step of aligning longitudinal axes of said plurality of single-walled tubular fullerenes with a direction of flow thereof.

5. (Previously presented) The method as recited in Claim 2, wherein the step of directing a flow includes the step of aligning longitudinal axes of said plurality of single-walled tubular fullerenes with a direction of flow thereof.

6. (Previously presented) The method as recited in Claim 3, wherein the step of directing a flow includes the step of aligning longitudinal axes of said plurality of single-walled tubular fullerenes with a direction of flow of said fluid.

7. (Original) The method as recited in Claim 6, wherein the step of aligning includes the step of forming a confinement-based alignment through at least one outlet passage.

8. (Original) The method as recited in Claim 7, wherein said at least one outlet passage has a diameter less than one thousand times greater than a diameter of said single-walled tubular fullerenes.

9. (Original) The method as recited in Claim 6, wherein the step of aligning includes the step of forming an extensional flow through at least one outlet passage.

10. (Original) The method as recited in Claim 9, wherein the step of forming an extensional flow includes the step of forming a constriction region within said outlet passage.

11. (Original) The method as recited in Claim 10, wherein the step of forming a constriction region includes the step of forming said outlet passage with an open bottom juxtaposed on said substrate to define a closed contour passage.

12. (Original) The method as recited in Claim 1, wherein the step of providing a plurality of single-walled tubular fullerenes includes the step of functionalizing said plurality of single-walled tubular fullerenes with molecular groups having one of a high electric or magnetic susceptibility.

13. (Previously presented) The method as recited in Claim 12, wherein the step of directing a flow includes the step of aligning longitudinal axes of said plurality of single-walled tubular fullerenes with a direction of flow of said fluid using at least one electric or magnetic field directed across said fluid flow.

14. (Original) The method as recited in Claim 5, wherein the step of aligning includes the step of forming extensional flow through at least one outlet passage.

15. (Original) The method as recited in Claim 14, wherein said step of forming an extensional flow includes the step of forming a constriction region within said outlet passage.

16. (Original) The method as recited in Claim 15, wherein the step of forming a constriction region includes the step of forming said outlet passage with an open bottom juxtaposed on said substrate to define a closed contour passage.

17. (Previously presented) The method as recited in Claim 1, wherein the step of directing a flow is preceded by the step of suspending said plurality of single-walled tubular fullerenes in a liquid crystal material.

18. (Previously presented) The method as recited in Claim 1, wherein the step of directing a flow is preceded by the step of providing an outlet passage with an open bottom juxtaposed on said substrate to thereby form a closed contour passage.

19. (Currently amended) A system for bulk separation of single-walled tubular fullerenes based on helicity, comprising:

a container of a fluid bearing single-walled tubular fullerenes, said single-walled tubular fullerenes each having a longitudinal axis;

a dispensing assembly having at least one outlet for discharging said single-walled tubular fullerenes in a directed flow and at least one inlet coupled in fluid communication with said container and spaced from said outlet;

a substrate having a lattice structure <u>and an exposed upper surface disposed in relation to said outlet of said dispensing assembly for said directed flow to be in parallel with said upper surface</u>, said lattice structure of said substrate having a selected axis disposed in an angular relationship with respect to said directed flow from said at least one outlet of said dispensing assembly, said axis

being at an angle selected to attract and hold single-walled tubular fullerenes of a predetermined helicity to said substrate as the single-walled tubular fullerenes flow ~~thereover~~ across said upper surface of said substrate; and,

a drainage assembly disposed adjacent to said substrate for carrying off any of said fluid bearing single-walled tubular fullerenes not held on said substrate.

20. (Previously presented) The system as recited in Claim 19, wherein said dispensing assembly includes means for aligning said longitudinal axes of said single-walled tubular fullerenes in said directed flow.

21. (Original) The system as recited in Claim 20, wherein said alignment means includes at least one outlet passage disposed in fluid communication with said at least one outlet of said dispensing assembly, said at least one outlet passage being adapted to form a confinement-based alignment therethrough.

22. (Original) The system as recited in Claim 21, wherein said at least one outlet passage has a diameter less than one thousand times greater than a diameter of said single-walled tubular fullerenes.

23. (Original) The system as recited in Claim 20, further comprising a container of a liquid crystal material, said alignment means including means for combining said single-walled tubular fullerenes with said liquid crystal material to suspend said single-walled tubular fullerenes therein, said suspension being flowed over said substrate.

24. (Original) The system as recited in Claim 19, wherein said at least one outlet of said dispensing assembly is defined by an outlet passage with an open bottom juxtaposed on said substrate.

25. (Original) The system as recited in Claim 20, wherein said alignment means includes an emission system in proximity to at least one outlet passage disposed in fluid communication with said at least one outlet of said dispensing assembly, said emission system exposing said fluid bearing single-walled tubular fullerenes to one of a magnetic field or an electric field to align said longitudinal axes of said single-walled tubular fullerenes with said flow.

26. (Original) The system as recited in Claim 19, further comprising a turntable for displaceably supporting said substrate.